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## EDUCATION

Columbia University 2014-present
**Ph.D. in Operations Research**
Industrial Engineering & Operations Research Department

Columbia University 2015
**Master of Science**
Industrial Engineering & Operations Research Department, GPA: 4.08

Universidad de Chile 2013
**Mathematical Engineer**
Thesis Title: “Analysis of Network Coding Algorithms”, Thesis Supervisor: Marcos Kiwi.

Universidad de Chile 2006-2011
**Bachelor of Engineering Sciences in Mathematics**

## AWARDS

Engineering School, Universidad de Chile 2006-2010
**Outstanding Student Prize**
Grant conferred to the best 10% students of every year.

Engineering School, Universidad de Chile 2006
**Merit Grant: Sixth Place, Free Scholarship for the First Year**
Grant conferred to the first 10 students from a total of 700 students that enter to the Engineering program.

National Entrance Exam to Chilean Universities 2005
**Maximum Score in Mathematics**
From a total of 182761 students taking the exam, 234 students obtained maximum score in Mathematics.

Knowledge Olympics, Universidad de Santiago 2005
**First Place in Mathematics**
National Olympics for last year high-school students.

Mathematics National Championship 2005
**Second Place**
National Mathematics Olympics for high-school students.

## INTERESTS

Main interests on Optimization, Discrete Mathematics, Theory of Computation, and Operations Research.

## PUBLICATIONS

Thesis 2012
**Title: “Análisis de Algoritmos de Codificación de Redes”**
(in English: “Analysis of Network Coding Algorithms”)
Study of the behavior of the queues when network-coding techniques are used to broadcast messages between one sender and two or three receivers through noisy channels (modeled as memoryless channels that can fail to transmit with some fix probability). url: http://www.tesis.uchile.cl/handle/2250/112309

## TALKS

**"Undetectable Cyber-Physical Attacks on Power Grids under the AC model”**
European Conference on Operational Research (EURO), Valencia, Spain. July 2018

**"Machine Learning with PMU signals"** July 2018
International Symposium on Mathematical Programming (ISMP 2018), Bordeaux, France

**"Analysis on Power Grid Attacks"** Nov. 2017
INFORMS Annual Meeting, Houston, TX.

**"On Routing Policies for Synchronized Queues"** Nov. 2015
INFORMS Annual Meeting, Philadelphia, PA.

## TEACHING EXPERIENCE

Columbia University
**Teaching Assistant** for: 2014-present
- Introduction to OR, Stochastic Models: Fall 2014,
- Introduction to OR, Stochastic Models (Master): Fall 2015, Spring 2016, Fall 2016.

Universidad de Chile 2008-2012
**Teaching Assistant** for:
- Introduction to Calculus: Fall 2008,
- Single Variable Calculus: Spring 2009,
- Multivariable Calculus: Fall 2010, Fall 2011,
- Measure Theory: Spring 2010,
- Algorithm and Data Structures: Fall 2010,
- Advanced Calculus: Spring 2008, Spring 2009,
- Discrete Mathematics for Computer Science: Fall 2011, Spring 2011, Fall 2012.
- Introduction to Algebra: Fall 2009,
- Linear Algebra: Spring 2008,
- Probability: Fall 2009,
- Graph Theory: Spring 2011,
- Optimization: Spring 2010,

Summer School of the Universidad de Chile 2008
**Teaching Assistant for a pre-calculus course for high-school students.**

## SCIENTIFIC EVENTS ATTENDANCE

INFORMS
**2017 INFORMS Annual Meeting** – Houston, TX.
**2015 INFORMS Annual Meeting** – Philadelphia, PA.

Microsoft Research New England, Cambridge
**MATCH-UP 2017**

Universidad de Chile – Valparaíso, Chile
**Discrete Mathematics Summer School**: 2009, 2010, 2011, 2012, 2013, 2014, and 2017.

IPCO – Valparaíso, Chile
**Integer Programming and Combinatorial Optimization**: 2013.

Universidad de Chile – Maitencillo, Chile
**Discrete Mathematics Winter School**: 2012.

Universidad Católica San Pablo – Arequipa, Peru
**1st Latin American Theoretical Informatics School**: 2012.

LATIN – Arequipa, Peru
**Latin American Symposium on Theoretical Informatics**: 2012.

## PROFESSIONAL EXPERIENCE

Center for Mathematical Modeling, Universidad de Chile — 2013
**Research Assistant**
Study and mathematical modeling of the energy required by an underground train over its trajectory by means of minimum cost speed curves.

Center for Mathematical Modeling, Universidad de Chile — 2010-2012
**Research Assistant**
Development of a social behavior modeling and simulation framework for assessing strategies in crisis response.

## EXTRACURRICULAR INFORMATION

Mathematical Engineering Students Union — 2010
**President**

Swimming Group of the College of Engineering — 2010-2013
**Team Member**